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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,508

12/17/2003

Sami Mangoubi

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06/04/2004

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,508

Applicant(s)

MANGOUBI, SAMI

Examiner

Hoon Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/972246.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 7-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher (US 5776612).

Regarding claim 1, Fisher teaches an electro-optical detection system comprising;

(a) an electro-optical payload (column 10 line 33+ teaches the window is advantageously employed in air craft or missile applications); and

(b) an optical window assembly (figure 1), for passing, to said electro-optical payload, electromagnetic radiation in at least one wavelength band selected from the group consisting of visible wavelength bands and infrared wavelength bands, while blocking electromagnetic radiation of radio and radar frequencies (column 1 line 55+), said optical window assembly including:

(i) an outer window (42),

(ii) an inner window (40), and

(iii) a housing, wherein said outer window (42) and said inner window (40) are mounted, said housing holding said outer window and said inner window apart, thereby

forming an intervening space (70) between said outer window and said inner window (figure 6).

Regarding claim 2, Fisher teaches that said outer window includes an outer surface facing away from said inner window and an inner surface facing towards said inner window, wherein said inner window includes an outer surface facing towards said outer window and an inner surface facing away from said outer window, and wherein at least one of said surfaces is coated with an optical coating (63) that is substantially transparent in at least one of said wavelength bands and that is substantially opaque to said electromagnetic radiation of radio and radar frequencies (figure 4, column 6 line 34-62).

Regarding claim 3, Fisher teaches that said inner surface of said inner window (40) is coated with said optical coating.

Regarding claim 7, Fisher teaches that said electro-optical payload includes:

- (ii) an array of photosensitive elements (22), and
- (ii) a focusing component (24) for focusing said electromagnetic radiation in said at least one wavelength band onto said array (figure 1).

Regarding claim 8, Fisher teaches a mobile platform comprising;

(a) an electro-optical detection system (figure 1) including:

- (i) an optical window assembly, for admitting to the mobile platform electromagnetic radiation in at least one wavelength band selected from the group consisting of visible wavelength bands and infrared wavelength bands,

while blocking electromagnetic radiation of radio and radar frequencies (column 1 line 55+), said optical window assembly including:

(A) an outer window (42),

(B) an inner window (40), and

(C) a housing, wherein said outer window and said inner window are mounted, said housing holding said outer window and said inner window apart, thereby forming an intervening space (70) between said outer window and said inner window (figure 6).

Regarding claim 9, Fisher teaches that said electro-optical detection system further includes an electro-optical payload (missile) for receiving said electromagnetic radiation in said at least one wavelength band.

Regarding claim 10, Fisher teaches that said electro-optical payload

(A) an array of photosensitive elements (22), and

(B) a focusing component (24) for focusing said electromagnetic radiation in said at least one wavelength band onto said array (figure 1).

Regarding claim 11, Fisher teaches said outer window includes an outer surface facing away from said inner window and an inner surface facing towards said inner window, wherein said inner window includes an outer surface facing towards said outer window and an inner surface facing away from said outer window, and wherein at least one of said surfaces is coated with an optical coating that is substantially transparent in at least one of said wavelength bands and that is substantially opaque to said electromagnetic radiation of radio and radar frequencies (column 6 line 34-62).

Regarding claim 12, Fisher teaches said inner surface of said inner window is coated with said optical coating (63).

Regarding claim 13, Fisher teaches

(b) a fuselage; and wherein said outer window includes an outer surface that is substantially flush with said fuselage (column 10 line 33+ teaches the window is advantageously employed in aircraft or missile applications).

Regarding claim 14, Fisher teaches

(b) a mechanism for propelling the platform at a supersonic speed (column 10 line 33+ teaches the window is advantageously employed in aircraft or missile applications).

Regarding claim 15, Fisher teaches a method of detecting, from within a platform moving at a supersonic speed (column 10 line 33+ teaches the window is advantageously employed in air craft or missile applications), electromagnetic radiation in at least one wavelength band selected from the group consisting of visible wavelength bands and infrared wavelength bands (column 1 line 55+), comprising the steps of:

(a) providing the platform with an inner window (40) that is transparent in the at least one wavelength band (column 1 line 55+); and

(b) thermally insulating (outer window 42 with coating 64) said inner window, from an atmosphere external to the platform, in a manner that allows the electromagnetic radiation to reach said inner window (figure 6, column 7 line 32+).

Regarding claim 16, Fisher teaches that said inner window (40) includes an outer surface and an inner surface, at least one of said surfaces being coated with an optical coating (72) that is substantially transparent in the at least one wavelength band and that is substantially opaque to electromagnetic radiation of radio and radar frequencies.

Regarding claim 17, Fisher teaches that said inner surface (54) is coated with said optical coating (66).

Regarding claim 18, Fisher teaches that said insulating is effected by steps including incorporating said inner window in an optical window assembly that further includes:

- (i) an outer window between said external atmosphere and said inner window, and
- (ii) a housing, wherein said outer window and said inner window are mounted, said housing holding said outer window and said inner window apart, thereby forming an intervening space (70) between said outer window and said inner window (figure 6).

Regarding claim 19, Fisher teaches that said outer window (42) includes an outer surface facing towards said external atmosphere and an inner surface facing towards said inner window (40), wherein said inner window (40) includes an outer surface facing towards said outer window (42) and an inner surface facing away from said outer window, and wherein at least one of said surfaces is coated with an optical coating (63) that is substantially transparent in the at least one wavelength band and that is substantially opaque to said electromagnetic radiation of radio and radar frequencies (column 6 line 34-62).

Regarding claim 20, Fisher teaches that said inner surface of said inner window (40) is coated with said optical coating (63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher.

Fisher fails to teach that the intervening space is occupied by vacuum.

However, vacuum is well known a thermal insulator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the intervening space of Fisher with vacuum as thermal insulator since the vacuum would further reduce heat generated by outer surface so that thermal stress from windows would be reduced.

Claims 5-6 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Macken (US 5128953).

Regarding claim 4-6, Fisher fails to teach a mechanism for cooling the windows.

Macken teaches a mechanism for cooling a coolant between two optical members.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the window cooling mechanism as taught by Macken, since the mechanism would provide effective heat removal to prevent thermal stress from the optical members (column 2 line 25+)

Regarding claim 5 and 22, Macken teaches that said intervening space is occupied by a thermally insulating substance (He gas).

Regarding claim 6 and 23, Macken teaches that said intervening space is occupied by a coolant, the electro-optical detection system further comprising:

a mechanism for circulating said coolant through said intervening (figure 2).

Claims 5-6 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Uwira et al. (US 5372333)

Regarding claim 4-6, Fisher fails to teach what is occupying the intervening space

Uwira teaches a mechanism for cooling seeker head through a intervening space (figure 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Fisher's window structure to adapt Uwira's cooling device, since the cooling device of Uwira would prevent over-heat due to super fast speed of the missile. Further, the cooling device would also prevent thermal stress among the window by further removing heat generated from a surface.

Regarding claim 5 and 22, Macken teaches that said intervening space is occupied by a thermally insulating substance (Liquid nitrogen).


Regarding claim 6 and 23, Macken teaches that said intervening space is occupied by a coolant, the electro-optical detection system further comprising:
a mechanism (52) for circulating said coolant through said intervening.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DAVID V. BRUCE
PRIMARY EXAMINER

HKS

5/26/04